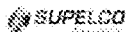


## **EXHIBIT A**

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## Sephacel®

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Product #	Description
2B300	Sephacel® 2B 60-200 µm bead diameter
4B200	Sephacel® 4B 40-165 µm bead diameter
6B100	Sephacel® 6B 6% Beaded Agarose, 45-165 µm (wet), fractionation range 10,000-1,000,000 Da (dextran)
CL2B300	Sephacel® CL-2B Cross-linked
CL4B200	Sephacel® CL-4B Cross-linked
CL6B200	Sephacel® CL-6B Cross-linked

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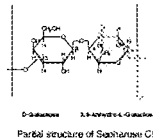
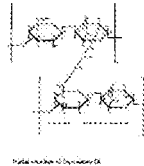
3050 Spruce Street  
Saint Louis, Missouri 63103 USA  
Telephone 800-325-5832 • (314) 771-5765  
Fax (314) 286-7828  
email: techserv@sial.com  
sigma-aldrich.com

## Product Information

### SEPHAROSE AND SEPHAROSE CL GEL FILTRATION MEDIA

Exact replacement for Product Code 84963

The information below is abstracted, for customer convenience, from a supplier technical manual and a supplier information sheet. Complete copies of supplier data are available upon request from Sigma Research Technical Service.

SEPHAROSE	SEPHAROSE CL
 <p>Partial structure of Sepharose CL</p>	 <p>Partial structure of Sepharose CL</p>
CHARACTERISTICS	
<ul style="list-style-type: none"> <li>- Broad fractionation range</li> <li>- High exclusion limits</li> <li>- Negligible non-specific adsorption</li> <li>- Appearance: white suspension</li> </ul>	<ul style="list-style-type: none"> <li>- Broad fractionation range</li> <li>- High exclusion limits</li> <li>- Negligible non-specific adsorption</li> <li>- Excellent chemical and physical stability</li> <li>- Appearance: white suspension</li> </ul>
PRODUCT DESCRIPTION	
<p>Sepharose is a beaded agarose gel filtration medium with a broad fractionation range. Three different agarose contents are available: 2%, 4% and 6%, designated 2B, 4B and 6B, respectively. As agarose concentration increases porosity decreases, thus increasing rigidity and altering the fractionation range; nucleic acids and polysaccharides with molecular weights up to <math>4 \times 10^7</math> can be separated on Sepharose 2B.</p>	<p>Sepharose CL is a cross-linked derivative of Sepharose, prepared by reacting Sepharose with 2,3-dibromopropanol under strongly alkaline conditions. After cross-linking, the gel is desulfated by alkaline hydrolysis under reducing conditions. The resulting crosslinked polysaccharide chains have a very low content of ionizable groups and better chemical and physical resistance than Sepharose, as well as improved flow properties. Porosity, however, is comparable to that of Sepharose. Three different agarose contents are available: 2%, 4% and 6%, designated CL-2B, CL-4B and CL-6B,</p>



ionic strengths exceeding 0.02 M are sometimes necessary (for example, tRNA species have been resolved in high concentrations of ammonium sulfate, and DNA has been separated from RNA in 1.5 N NaCl). The gels can be cleaned as indicated below and stored at 4-8EC in a suitable antimicrobial agent (e.g., 20% ethanol) for indefinite time periods.

Sepharose should be cleaned in the column or batchwise with a non-ionic detergent solution.

Sepharose CL can be cleaned in the column or batchwise. Wash with at least 1 CV of 0.5 N NaCl in 0.1 N NaOH (a step which also sterilizes the resin), then with 10 CV of water (or until the eluent is at neutral pH).